What is claimed is:

1. A lighting system comprising:

a bulb radiating light;

a reflection mirror that reflects the light emitted from the bulb and has an opening toward which the reflected light is emitted; and

at least one reflection unit covering a portion of the opening of the reflection mirror.

2. The lighting system of claim 1, wherein the reflection mirror is one of an elliptic mirror and a parabolic mirror.

3. The lighting system of claim 1 or 2, further comprising:

another reflection unit covering another portion of the opening of the reflection mirror, wherein the at least one and another reflection units are symmetrically arranged with respect to a center of the opening of the reflection mirror.

4. The lighting system of claim 1 or 2, wherein the at least one reflection unit is arranged to reflect the light toward a remaining portion of the opening of the reflection mirror.

5. A lighting system comprising:

a bulb radiating light;

a reflection mirror that reflects the light emitted from the bulb; and

a reflection unit installed on a portion of a surface of the bulb.

6. The lighting system of claim 5, wherein the reflection mirror is one of an elliptic mirror and a parabolic mirror.

7. The lighting system of claim 5 or 6, wherein the reflection

unit is installed on a portion of a hemispherical surface of the bulb facing the reflection mirror.

8. The lighting system of claim 7, wherein the reflection unit is coated on the hemispherical surface of the bulb.

9. A projection system forming an image by processing light emitted from a lighting system according to an input image signal using a light valve, magnifying the image, and projecting the image onto a screen using a projection scrolling unit, wherein the lighting system comprises:

a bulb generating light;

a reflection mirror that reflects the light emitted from the bulb and has an opening toward which the reflected light is emitted from the bulb; and

at least one reflection unit covering a portion of the opening of the reflection mirror.

10. The projection system of claim 9, wherein the reflection mirror is one of an elliptic mirror and a parabolic mirror.

11. The projection system of claim 9 or 10, comprising:

an optical splitter for splitting light emitted from the lighting system according to wavelength; and

a scrolling unit having at least one lens cell and converting the rotation of the at least one lens cell into a rectilinear motion of a lens cell through which light passes so that the light emitted from the lighting system is scrolled.

12. The projection system of claim 11, further comprising at least one fly eye lens array for focusing the light transmitted by the

scrolling unit on at least two different areas of the light valve according to a color.

13. The projection system of claim 12, further comprising a relay lens for transmitting the light transmitted by the at least one fly eye lens array to the light valve.

14. The projection system of claim 11, wherein the optical splitter includes first through third dichroic filters adjacently disposed at different angles to selectively transmit or reflect the incident light according to wavelength.

15. The projection system of claim 11, wherein the optical splitter includes first through third dichroic filters disposed in parallel to selectively transmit or reflect the incident light according to wavelength.

16. The projection system of claim 15, further comprising a prism before the optical splitter.

17. The projection system of claim 11, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

18. The projection system of claim 11, wherein the scrolling unit includes at least one lens cell, and it appears to the light incident upon the scrolling unit that the rotation of the scrolling unit is converted into a rectilinear motion of the lens cell.

19. The projection system of claim 18, wherein the at least one

lens cell is arranged spirally.

20. The projection system of claim 19, wherein the lens cell is a cylindrical lens.

21. The projection system of claim 19 or 20, wherein the scrolling unit has a shape of a disk.

22. A projection system forming an image by processing light emitted from a lighting system according to an input image signal using a light valve, magnifying the image, and projecting the image onto a screen using a projection scrolling unit, wherein the lighting system comprises:

a bulb generating light;

a reflection mirror that reflects the light emitted from the bulb; and

a reflection unit installed on a portion of a surface of the bulb.

23. The projection system of claim 22, wherein the reflection mirror is one of an elliptic mirror and a parabolic mirror.

24. The projection system of claim 22 or 23, comprising:

an optical splitter for splitting light emitted from the lighting system according to wavelength; and

a scrolling unit having at least one lens cell and converting the rotation of the at least one lens cell into a rectilinear motion of a lens cell through which light passes so that the light emitted from the lighting system is scrolled.

25. The projection system of claim 24, further comprising at least one fly eye lens array for focusing the light transmitted by the scrolling unit on at least two different areas of the light valve according to

a color.

26. The projection system of claim 25, wherein a relay lens for transmitting the light transmitted by the at least one fly eye lens array to the light valve.

27. The projection system of claim 24, wherein the optical splitter includes first through third dichroic filters adjacently disposed at different angles to selectively transmit or reflect the incident light according to wavelength.

28. The projection system of claim 24, wherein the optical splitter includes first through third dichroic filters disposed in parallel to selectively transmit or reflect the incident light according to wavelength.

29. The projection system of claim 28, further comprising a prism before the optical splitter.

30. The projection system of claim 24, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

31. The projection system of claim 24, wherein the scrolling unit includes at least one lens cell, and from the viewpoint of the light incident upon the scrolling unit, the rotation of the scrolling unit is converted into a rectilinear motion of the lens cell.

32. The projection system of claim 31, wherein the at least one lens cell is arranged spirally.

33. The projection system of claim 32, wherein the lens cell is a cylindrical lens.

34. The projection system of claim 32 or 33, wherein the scrolling unit has a shape of a disk.

35. A scrolling unit for scrolling incident unit, the scrolling unit comprising:

a rotation axis; and

at least one lens cell having an incident side and an emitting side, dividing incident light into light beams of individual lens cells, and making the rotation of the scrolling unit cause a rectilinear motion of the light beams.

36. The scrolling unit of claim 35, wherein the rectilinear motion of the light beams is made in the direction where the light beams become closer to or farther from the rotation axis.

37. The scrolling unit of claim 35, wherein the rotation of the scrolling unit causes the rectilinear motion of the light beams to be periodically repeated.

38. The scrolling unit of any of claims 35 through 37, wherein the lens cells are spirally arranged.

39. The scrolling unit of claim 38, wherein the scrolling unit has a shape of a disk.

40. The scrolling unit of claim 38 or 39, wherein the lens cells

are cylindrical lenses.

41. A scrolling unit having at least one lens cell and scrolling incident light in such a way that, from the viewpoint of light incident upon the at least one lens cell, the rotation of the at least one lens cell is converted into a rectilinear motion of a lens array.

42. The scrolling unit of claim 41, wherein the lens cells are spirally arranged.

43. The scrolling unit of claim 42, wherein the lens cells are cylindrical lenses.

44. The scrolling unit of any of claims 41 through 43, wherein the scrolling unit has a shape of a disk.

45. The scrolling unit of any of claims 41 through 43, wherein the lens cells are formed of any of a diffractive optical element and a hologram optical element such that incident light is divided according to color.

46. The scrolling unit of any of claims 41 through 43, wherein the lens cells are arranged so that, when a normal line is drawn to the lens cells, the interval between adjacent lens cells is uniform, and the normal vectors of adjacent lens cells are the same.

47. The scrolling unit of claim 46, wherein a spiral track (Q_{kx},Q_{ky}) of the lens cell satisfies the following Equation:

$$Q_{kx} = Q_{1,x}\cos(k-1)\,\theta_2 - Q_{1,y}\sin(k-1)\,\theta_2$$

$$Q_{ky} = Q_{1,y}\sin(k-1)\,\theta_2 - Q_{1,y}\cos(k-1)\,\theta_2$$

wherein $Q_{1,x}$ and $Q_{1,y}$ denote the x and y coordinates of a first cylinder lens cell, respectively, k denotes a natural number, and θ_2 denotes a rotation angle between adjacent curves.

48. The scrolling unit of any of claims 41 through 43, wherein the cross-section of the scrolling unit is an array of arcs having the same radius.

49. The scrolling unit of claim 48, wherein each of the lens cells is formed of any of a binary lens, a continuous relief lens, a multi-step lens, a multi-order refractive lens, a thin hologram lens, and a volume hologram lens.

50. A scrolling unit for scrolling incident light, in which at least one lens cell is included, and from the viewpoint of incident light, the position of the at least one lens cell changes as the scrolling unit rotates around a rotation axis.

51. The scrolling unit of claim 50, wherein the change of the position of the lens cell is made in the direction where the lens cell becomes closer to or farther from the rotation axis.

52. The scrolling unit of claim 50 or 51, wherein the rotation of the scrolling unit causes the position of the lens cell to be periodically change.

53. The scrolling unit of claim 50 or 51, wherein the lens cells are spirally arranged.

54. The scrolling unit of claim 53, wherein the scrolling unit has

a shape of a disk.

55. The scrolling unit of claim 50 or 51, wherein the lens cells are cylindrical lenses.

56. A projection system comprising:

a light source;

an optical splitter for splitting light emitted from the light source according to wavelength;

at least one scrolling unit having at least one lens cell and scrolling incident light in such a way that it appears to light transmitted by the lens cell that the rotation of the lens cell is converted into a rectilinear motion of a lens array; and

a light valve on which the light emitted from the light source is separated into color beams by the optical splitter and the scrolling unit and on which the color beams are focused, the light valve processing incident light according to an input image signal in order to form a color image.

57. The projection system of claim 56, wherein the lens cells are spirally arranged.

58. The projection system of claim 57, wherein the lens cells are cylindrical lenses.

59. The projection system of any of claims 56 through 58, wherein the scrolling unit has a shape of a disk.

60. The projection system of any of claims 56 through 58, wherein at least one fly eye lens array is installed on a light path between

the scrolling unit and the light valve.

61. The projection system of claim 60, wherein a relay lens for focusing the light transmitted by the at least one fly eye lens array on the light valve is included.

62. The projection system of any of claims 56 through 58, wherein the optical splitter includes first through third dichroic filters adjacently disposed at different angles to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed behind the optical splitter.

63. The projection system of any of claims 56 through 58, wherein the optical splitter includes first through third dichroic filters disposed in parallel to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed before the optical splitter.

64. The projection system of claim 63, further comprising a prism before the optical splitter.

65. The projection system of any of claims 56 through 58, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

66. The projection system of claim 61, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the

scrolling unit, in order to control the width of an incident beam.

67. The projection system of any of claims 56 through 58, wherein the lens cells are formed of any of a diffractive optical element and a hologram optical element.

68. The projection system of any of claims 56 through 58, wherein the lens cells are arranged so that, when a normal line is drawn to the lens cells, the interval between adjacent lens cells is uniform, and the normal vectors of adjacent lens cells are the same.

69. The projection system of claim 68, wherein a spiral track (Q_{kx},Q_{ky}) of the lens cell satisfies the following Equation:

$$Q_{kx} = Q_{1,x}\cos(k-1)\,\theta_2 - Q_{1,y}\sin(k-1)\,\theta_2$$

$$Q_{ky} = Q_{1,y}\sin(k-1)\,\theta_2 - Q_{1,y}\cos(k-1)\,\theta_2$$

wherein $Q_{1,x}$ and $Q_{1,y}$ denote the x and y coordinates of the first cylinder lens cell, respectively, k denotes a natural number, and θ_2 denotes a rotation angle between adjacent curves.

70. The projection system of any of claims 56 through 58, wherein the cross-section of the scrolling unit is an array of arcs having the same radius.

71. The projection system of claim 67, wherein the lens cell is formed of any of a binary lens, a continuous relief lens, a multi-step lens, a multi-order refractive lens, a thin hologram lens, and a volume hologram lens.

72. The projection system of any of claims 56 through 58, wherein the number of lens cells on the at least one scrolling unit is

determined so that the scrolling unit can operate in synchronization with the operating frequency of the light valve.

73. The projection system of any of claims 56 through 58, wherein the rotation frequency of the scrolling unit is controlled so as to be synchronized with the operating frequency of the light valve.

74. A projection system comprising:

a light source;

at least one scrolling unit having at least one cell and manufactured of any of a diffractive optical element and a hologram optical element so that light emitted from the light source is separated according to wavelength and incident light is scrolled by converting the rotation of the cell into the rectilinear motion of a cell array; and

a light valve on which the light emitted from the light source is separated into color beams by the optical splitter and the scrolling unit and on which the color beams are focused, the light valve processing incident light according to an input image signal to form a color image.

75. The projection system of claim 74, wherein the lens cells are spirally arranged.

76. The projection system of claim 75, wherein the rectilinear motion of the cell array is made in the direction where the cell array becomes closer to or farther from the rotation axis.

77. The projection system of any of claims 74 through 76, wherein the scrolling unit has a shape of a disk.

78. The projection system of any of claims 74 through 76,

wherein at least one fly eye lens array is installed on a light path between the scrolling unit and the light valve.

79. The projection system of claim 78, wherein a relay lens for focusing the light transmitted by the at least one fly eye lens array on the light valve is included.

80. The projection system of any of claims 74 through 76, wherein a first cylinder lens is installed before the scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

81. The projection system of claim 78, wherein a first cylinder lens is installed before the scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

82. A projection system comprising:

a light source;

an optical splitter for splitting light emitted from the light source according to wavelength;

at least one scrolling unit having at least one lens cell, the lens cell having an incident side and an emitting side and dividing incident light into light beams, in which the rotation of the lens cell causes a rectilinear motion of the light beams to achieve scrolling of incident light; and

a light valve on which the light emitted from the light source is separated into color beams by the optical splitter and the scrolling unit and on which the color beams are focused, the light valve processing incident light according to an input image signal in order to form a color image.

83. The projection system of claim 82, wherein the lens cells are spirally arranged.

84. The projection system of claim 83, wherein the lens cells are cylindrical lenses.

85. The projection system of any of claims 82 through 84, wherein the scrolling unit has a shape of a disk.

86. The projection system of any of claims 82 through 84, wherein the rectilinear motion is made in the direction where the light beams become closer to or farther from the rotation axis.

87. The projection system of any of claims 82 through 84, wherein at least one fly eye lens array is installed on a light path between the scrolling unit and the light valve.

88. The projection system of claim 87, wherein a relay lens for focusing the light transmitted by the at least one fly eye lens array on the light valve is included.

89. The projection system of any of claims 82 through 84, wherein the optical splitter includes first through third dichroic filters adjacently disposed at different angles to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed behind the optical splitter.

90. The projection system of claim 87, wherein the optical splitter includes first through third dichroic filters adjacently disposed at

different angles to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed behind the optical splitter.

91. The projection system of any of claims 82 through 84, wherein the optical splitter includes first through third dichroic filters disposed in parallel to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed before the optical splitter.

92. The projection system of claim 91, further comprising a prism before the optical splitter.

93. The projection system of claim 87, wherein the optical splitter includes first through third dichroic filters disposed in parallel to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed before the optical splitter.

94. The projection system of any of claims 82 through 84, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

95. The projection system of claim 87, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

96. A projection system comprising:

a light source;

an optical splitter for splitting light emitted from the light source according to wavelength;

at least one scrolling unit having at least one lens cell, in which from the viewpoint of incident light, the position of the at least one lens cell changes as the scrolling unit rotates around a rotation axis; and

a light valve on which the light emitted from the light source is separated into color beams by the optical splitter and the scrolling unit and on which the color beams are focused, the light valve processing incident light according to an input image signal in order to form a color image.

97. The projection system of claim 96, wherein the lens cells are spirally arranged.

98. The projection system of claim 97, wherein the lens cells are cylindrical lenses.

99. The projection system of any of claims 96 through 98, wherein the scrolling unit has a shape of a disk.

100. The projection system of any of claims 96 through 98, wherein the position of the lens cell is changed such as to become closer to or farther from the rotation axis.

101. The projection system of any of claims 96 through 98, wherein a unit for forming color bars by focusing the light transmitted by the optical splitter and the scrolling unit on different areas of the light valve according to a color.

102. The projection system of claim 101, wherein the color bar forming unit includes at least one fly eye lens array.

103. The projection system of claim 102, wherein the color bar forming unit includes a relay lens for focusing the light transmitted by the at least one fly eye lens array on the light valve.

104. The projection system of any of claims 96 through 98, wherein the optical splitter includes first through third dichroic filters adjacently disposed at different angles to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed behind the optical splitter.

105. The projection system of claim 101, wherein the optical splitter includes first through third dichroic filters adjacently disposed at different angles to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed behind the optical splitter.

106. The projection system of any of claims 96 through 98, wherein the optical splitter includes first through third dichroic filters disposed in parallel to selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed before the optical splitter.

107. The projection system of claim 106, further comprising a prism before the optical splitter.

108. The projection system of claim 101, wherein the optical splitter includes first through third dichroic filters disposed in parallel to

selectively transmit or reflect the incident light according to wavelength, and the scrolling unit is installed before the optical splitter.

109. The projection system of any of claims 96 through 98, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.

110. The projection system of claim 101, wherein a first cylinder lens is installed before the at least one scrolling unit, and a second cylinder lens paired with the first cylinder lens is installed behind the scrolling unit, in order to control the width of an incident beam.